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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/775,070	02/01/2001	Juergen Beuthan	P01,0031	8016

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SCHIFF HARDIN, LLP  
PATENT DEPARTMENT  
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CHICAGO, IL 60606-6473

EXAMINER
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JUNG, WILLIAM C

ART UNIT	PAPER NUMBER
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3737

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

### Period for Reply

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2005.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 9, 20-24 and 35-39 is/are rejected.
- 7) ☒ Claim(s) 2-8, 10-19 and 25-34 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed June 27, 2005 have been fully considered but they are not persuasive.

The applicant's traversal of rejection based on Lanza et al was fully considered, however, the examiner respectfully disagrees. The applicant asserts that Lanza et al's disclosure involves bone density measurement without any mention of determining the diameter of the bone. Since the bone shape is irregular and the true diameter will vary depending on the bone shape of the patient the true diameter and circumference is an estimate. Lanza et al disclose not directly defining the diameter but width of the bone (col. 10, lines 54-66) because of the irregularity in bone shape. Therefore, Lanza et al discloses determining estimate of bone diameter and the circumference of the bone is a function of the above estimate. The estimation of the bone width is achieved with edge detection technique (col. 8, lines 22-36).

In addition, Lanza et al disclose that the above technique is applied to radiological images (col. 3, line 67 – col. 4, line 12). The radiological images disclosed in Lanza et al is x-ray however, the imaging in radiology in broad definition includes MRI, CT, ultrasound and optical imaging system. Therefore, the imaging method is replaceable with other imaging modality as long as bone images are obtained.

Furthermore, while Chance's invention is specifically applied with spectroscopy, figure 8A shows that the data obtained also can be used with image overlay, and the image can be derived from the spectroscopical data (col. 17, lines 29-42).

Therefore, the rejection from the previous office action is maintained and repeated below (with correction from bone radius to bone width).

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 9, 20-24, and 35-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Lanza et al* (US 5,138,553) in view of *Chance* (US 6,526,309).

Lanza et al substantially disclose of all claimed features in claims 1, 9, 20-23, 24, and 35-99.

***Claims 1, 9, and 24:*** Lanza et al disclose a method and apparatus where a patient's region of interest is analyzed with edge detection to determine the anatomical characteristic. More specifically, Lanza et al disclose measure the **bone width** from a projection image with edge detection analysis to determine the radius (half of diameter and circumference is a function of radius or diameter) (col. 3, line 66 – col. 4, line 12; col. 5, line 30 – col. 8, line 4). However, Lanza et al's device and method uses x-ray projection unlike the current application where light radiation is used to obtain the data. In Chance, the anatomical measurement such as blood vessel in extremities such as hand or finger is imaged with light through transmission (col. 7, line 57 – col. 8, line 6). Although, Lanza et al do not anticipate use of light radiation to determine the diameter, it is obvious under Chance's teaching where the through transmission is possible to obtain image data, especially is extremities of the patient where the light radiation would provide

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adequate image data. Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to apply Chance's teaching to Lanza et al to achieve the claimed invention.

**Claims 20-23 and 35-39:** In addition, Chance disclose that the light source is planar and laser diode 20 and 22 (infrared red light) disposed opposite of a detection camera 23 where the light is deflected by 90o (figure 6B) with a mirror 68A and 68B (col. 7, lines 1-16).

***Allowable Subject Matter***

4. Claims 2-8, 10-19, and 25-34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to William Jung, Ph.D. whose telephone number is 571-272-4739.

The examiner can normally be reached on Mon-Fri 8:30 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*WCS*  
September 5, 2005

  
**ALI IMAM**  
**PRIMARY EXAMINER**